Using Assistive Technology, Differentiated Instruction, and Professional Learning Teams

Closing the Gap - All Students Can Succeed - Raising the Bar

Betty Moore, Special Education Consultant
Caroline Pattison, Vice Principal
Trillium Lakelands District School Board

Introduction

Trillium Lakelands District School Board implemented three consecutive years of "CODE Projects." Our primary focus was to increase student achievement through access to and use of Assistive Technology among students with special needs during both instruction and assessment. Other foci included increasing the use of Differentiated Instruction approaches in teaching and assessment, and the establishment of Professional Learning Communities. The first two years were composed of pilot projects, while in the third year, the goal was to apply our learning to a board-wide approach.

Year One: Closing the Gap

The primary goal of year one was to increase the level of literacy achievement for Grade 5 and 6 students with special needs through improved assessment practices and Assistive Technology.

Professional learning communities were established within 10 pilot schools. Professional development focused on increasing the knowledge and skills of classroom and special education teachers regarding the effective use of the continuous assessment cycle, student learning profiles, universal design for learning, and Assistive Technology. Follow-up professional development encouraged collaborative relationships among the teachers utilizing assistive technology and student data to support learning. Job-embedded professional learning opportunities were provided to schools throughout the year.

Each participating classroom was provided with an additional computer and scanner. Another component to increasing accessibility was the purchase of a high-speed scanner in order to build a central library of scanned texts and novels.

Year Two: All Students Can Succeed

The primary goal of year two was to increase literacy achievement for students with special needs in Grades 5 to 10 through Assistive Technology, Universal Design for Learning, and Differentiated Instruction.

School teams were established in nine pilot schools—three secondary and six elementary. Professional development focused on Assistive Technology, Universal Design for Learning, and Differentiated Instruction. Each team collaboratively prepared a plan for implementing what they had learned within their own schools. This was followed by family of schools' professional development sessions during which teams shared successes and challenges and developed further implementation plans dependent upon their student and school needs in the areas of Assistive Technology, Differentiated Instruction and Universal Design for Learning. Mentoring and job-embedded professional learning was entrenched throughout the project.

Schools were supported with additional hardware (laptops, tablets, scanners) and school teams worked to create accessible classroom and school designs.

Year Three: Raising the Bar

The primary goal of year three was to increase literacy achievement for students with special needs throughout all TLDSB schools, both elementary and secondary, by increasing teacher knowledge and comfort with Assistive Technology and Differentiated Instruction to support both student instruction and assessment.

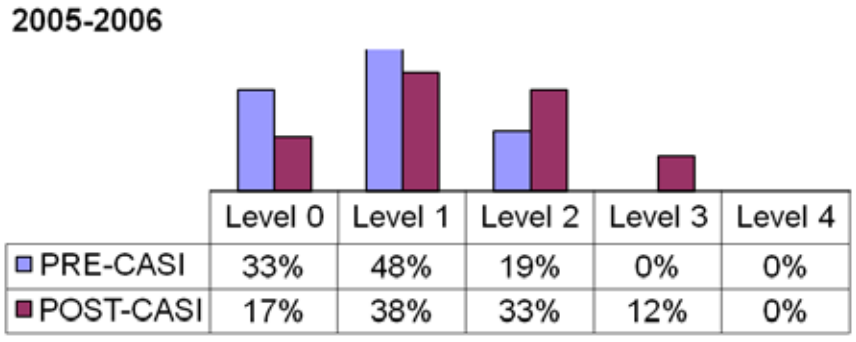
Assistive Technology Teams (ATT) were created within every school across the board. Three professional development sessions were provided throughout the school year, delivered in family of school areas. Between sessions, each ATT implemented a self-developed plan to build staff capacity, and followed the progress of specific students with special needs receiving Assistive Technology accommodations. Mentoring contacts and job-embedded professional learning opportunities were made available.

A mobile assistive technology training lab was purchased to enable board-wide training for the ATT members, as well as for school staff groups and students. Other resources were purchased and distributed to enable ATTs to implement their staff capacity-building plans.

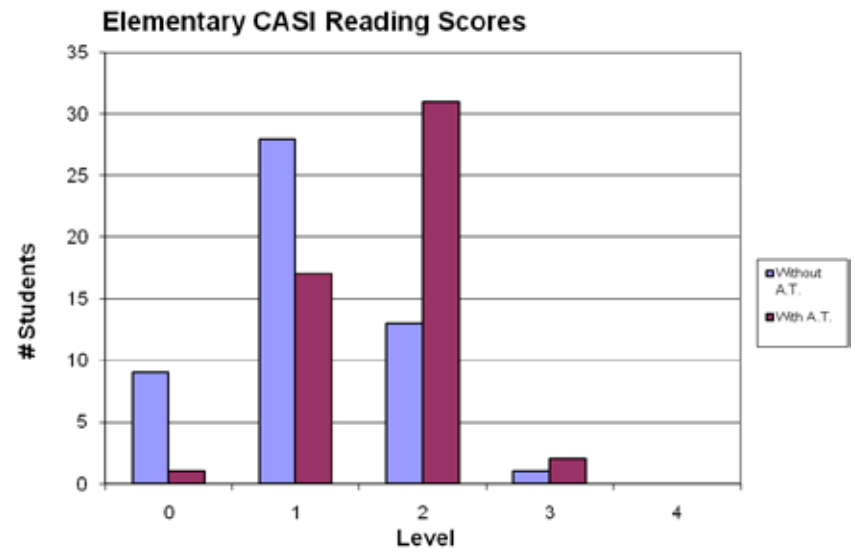
Student Achievement Results

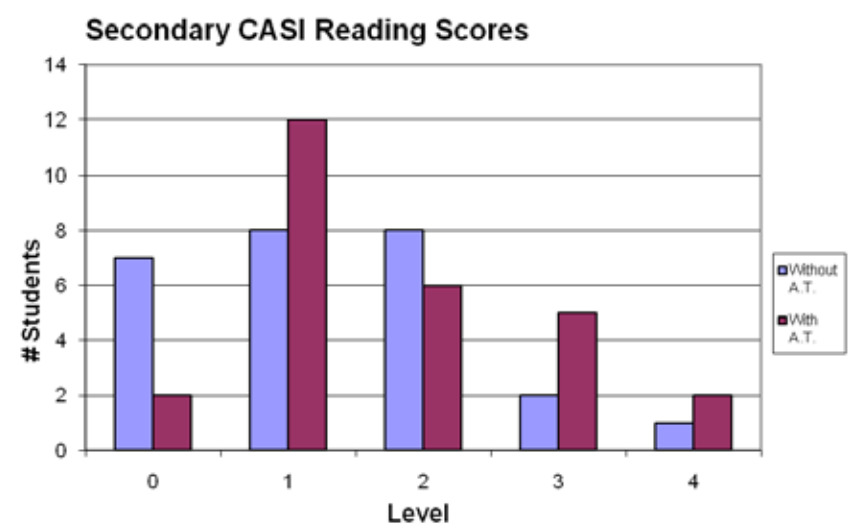
Overall, most of the students who were taught to use Assistive Technology experienced higher levels of achievement in reading and writing. CASI is a reading comprehension assessment. The Pre-CASI was given to students without access to Assistive Technology. The Post-CASI was given to students with access to Assistive Technology. Reading and writing achievement results from the 2007–07 project are also positive.

CODE Schools Overall CASI Results 2005-2006

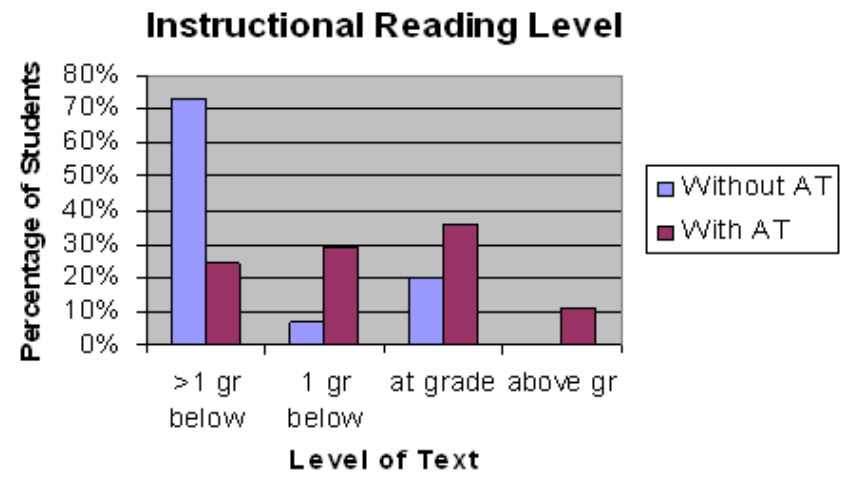


	Level 0	Level 1	Level 2	Level 3	Level 4
PRE-CASI	33%	48%	19%	0%	0%
POST-CASI	17%	38%	33%	12%	0%

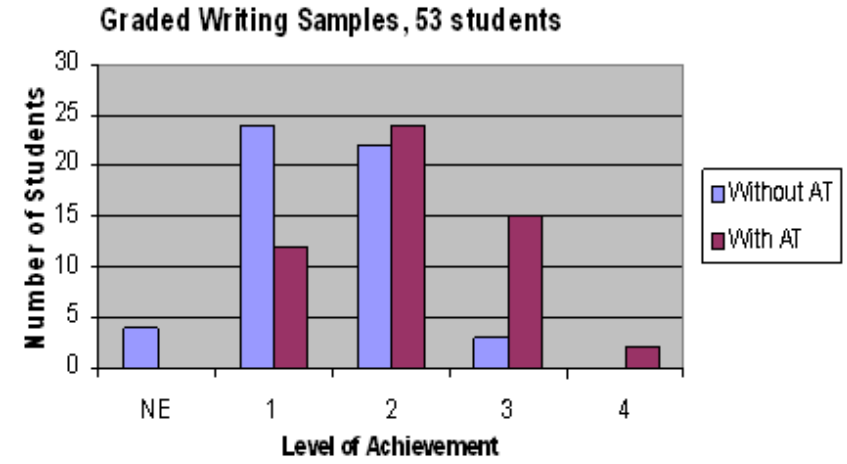




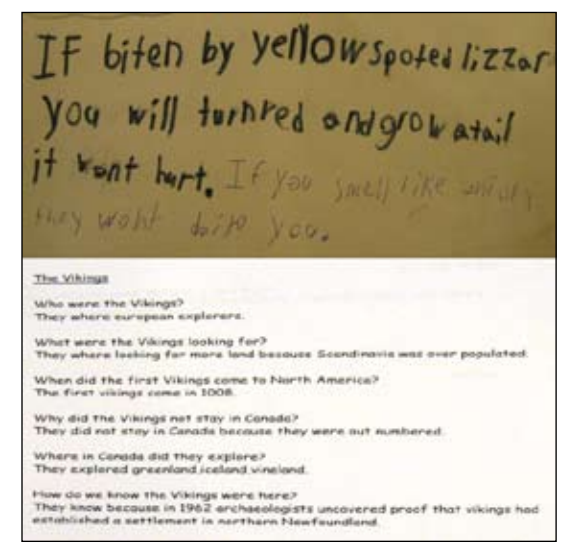
When using Assistive Technology, many students were able to significantly increase the level of text that they were able to access and comprehend.



When using Assistive Technology, many students were able to increase their level of writing.



Sample of Grade 6 student's work, without and with the use of Assistive Technology:



« Using Assistive Technology, continued

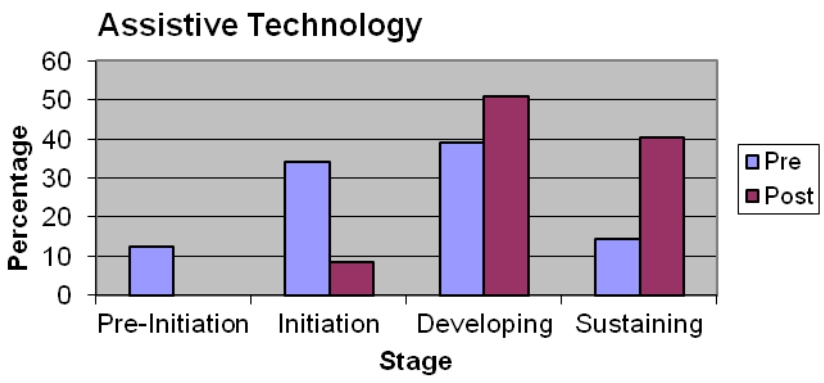
Student surveys were distributed as part of the data collection for each CODE Project. Some comments from students were:

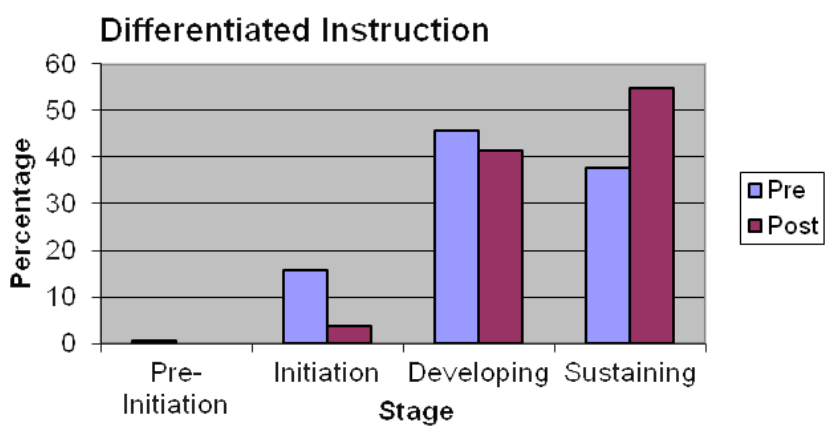
"It helps me be more independent — I can do it myself."
"…it helps me work better and it keeps me working longer"
"…people know what I am writing and they understand what I am writing"

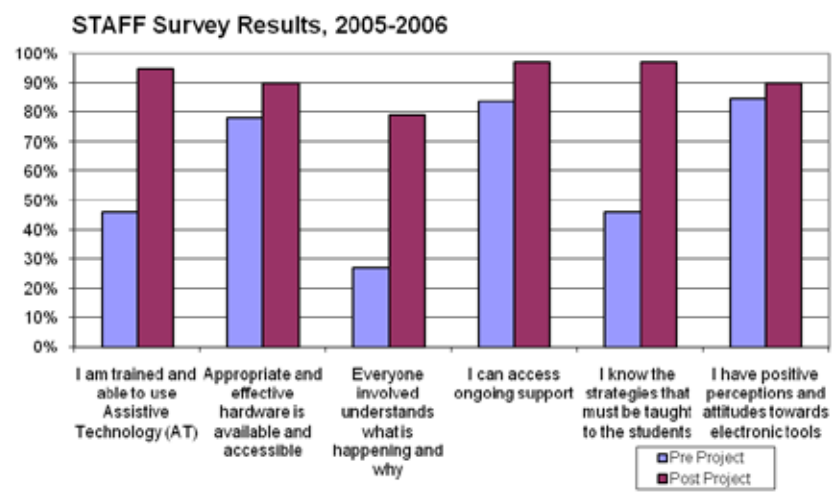
Observations shared by principals in their surveys were that students were more eager to learn, Assistive Technology helped students become more independent, students were able to express knowledge more easily, students were more excited about completing assignments and attending classes, there were fewer discipline problems, and parents were pleased with the increased successes of their children.

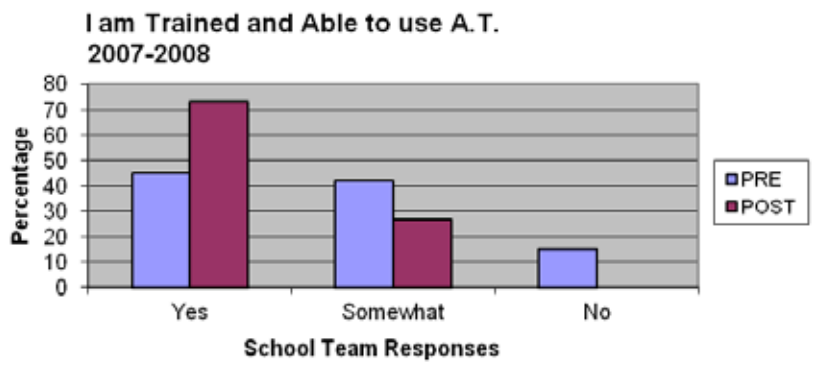
Teacher Practice

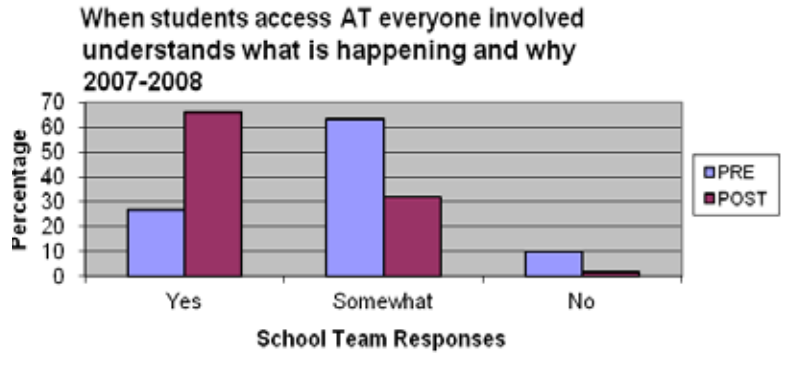
Teachers focused on Differentiated Instruction, Universal Design for Learning, and Assistive Technology, and self-assessment surveys were administered regarding these. Teachers reported an increase in comfort, skill and usage of Assistive Technology and Differentiated Instruction. Post-data showed that gains were made in each of these areas, with the greatest gains over the three years occurring in Assistive Technology.











System-Wide Impact

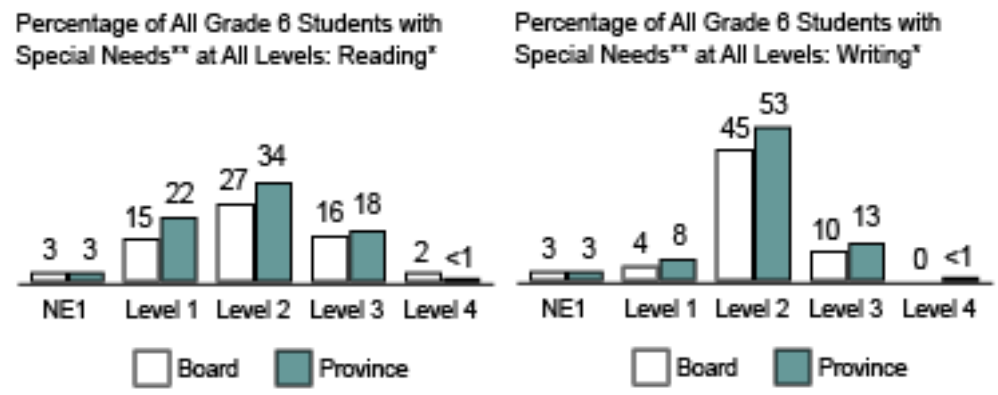
External expertise added an element of professional development for teachers and educational assistants that reinforced our common goal of increasing achievement for students with special needs. These experts included the following:

- Todd Cunningham, sharing his expertise in assistive technology
- Dr. Colin Laine, co-writer of Education for All
- John Draper, demonstrating his use of Communication Assistive Technology

EQAO results since the beginning of TLDSB's CODE project initiative indicate positive trends across the board, including lower exemption rates and higher accommodation rates for students with special needs.

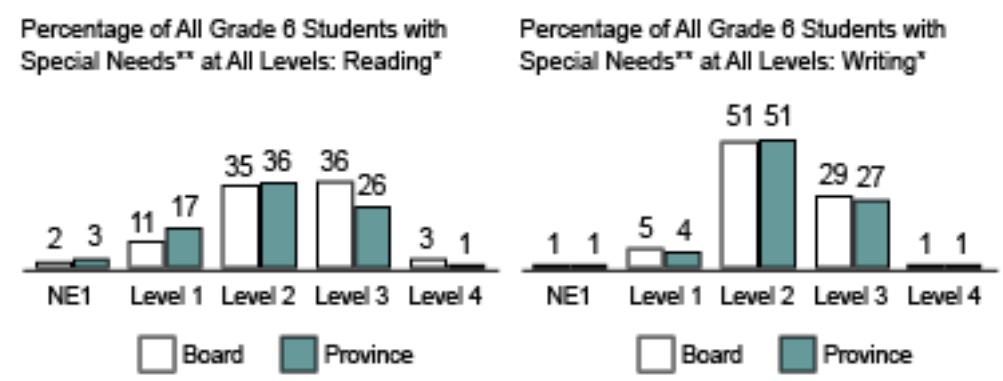
	2004-05		2007-09	
	TLDSB	Province	TLDSB	Province
Reading Exemptions	8%	5%	3%	3%
Writing Exemptions	8%	3%	3%	3%
Reading Accommodations	8%	?	21%	12%
Reading Accommodations	8%	?	21%	12%

2004–2005 Trillium Lakelands DSB EQAO Reading and Writing Results for Students with Special Needs before CODE Project Year One



(*, ** as per EQAO definition)

2007–2008 Trillium Lakelands DSB EQAO Reading and Writing Results for Students with Special Needs after CODE Project Year Three



(*, ** as per EQAO definition)

Summary of What We Learned

Throughout the three years of CODE projects, we have learned some important lessons:

- Regular use of Assistive Technology can positively impact reading comprehension, student independence and motivation.
- Assistive Technology is most beneficial within the regular classroom and when students with special needs and others have training.
- Teachers who directly experience students' enhanced performance through the use of Assistive Technology are impacted in their beliefs and practice.
- Teachers need to work collaboratively and share expertise.
- Higher success occurs when students are able to access Assistive Technology at home, and parents are encouraging the use of Assistive Technology.

Along with the successes, there were also a few challenges in our project initiatives:

- Professional development needs to be differentiated to fit the needs of schools and staff.
- Specific support is required to move schools ahead.
- There are barriers to student access — e.g., number of computers, possible stigma, student reluctance.

Next Steps:

- Continue to increase access to Assistive Technology.
- Monitor use of Assistive Technology.
- Pay special attention to transition and to ensure continued use of Assistive Technology in new grades or settings.
- Embed Assistive Technology more at universal design and planning stages. ⬣

Comments about this article? Email kevin.cutler@tldsb.on.ca